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Antibiotic Therapy

IT is less than 15 years ago that antibiotic treatment, by means of penicillin, was introduced for bacterial infections in man. It is less than 10 years ago that it was first widely used for infections in animals in this country. In the interval our knowledge of this agent, and of the many newer antibiotics subsequently discovered, has increased enormously. The extent of research into the problems, both in the medical and veterinary fields, has been prodigious, and the speed of practical application may almost be described as headlong.

The use of antibiotics has effected a revolution in treatment, resulting in the saving of an incalculable number of lives, both human and animal. In veterinary work the antibiotics have rendered an enormous service to more efficient farming.

Yet all this advance is not without its problems. Medical experience has produced abundant evidence that the widespread use of antibiotics, particularly in close communities such as hospitals, can result in changes of bacterial flora in which drug- or antibiotic-resistant strains of bacteria predominate. Patients infected with such strains fail to respond to treatment with the particular antibiotic to which the bacteria are resistant.

As a result it has been necessary to evolve, in the diagnostic laboratories, rapid and accurate tests which determine the sensitivities or resistances of the infecting bacteria from a patient, so that the antibiotic chosen may be appropriate to the infection.

For some time there have been misgivings in the profession that similar problems might exist, or be on the way, in veterinary practice. These doubts have been increased recently by the tendency in agriculture to adopt commercial foodstuffs in which antibiotics in low concentrations are incorporated. This practice is widespread in poultry and pig feeding, and there is considerable pressure exerted to extend the method to other classes of livestock. Undoubtedly, in certain circumstances, short term advantages particularly in increased growth rates result; but as yet we know little of the long term effects.

For this reason we draw particular attention to the interesting and disturbing article in this issue of THE RECORD by Williams Smith & Crabb. These workers provide evidence that resistant strains of *Bact. coli* associated with calf scours in certain veterinary practices are more common than they were a few years ago, particularly in respect to streptomycin. Resistance to treatment was associated with infection by resistant strains of *Bact. coli*, or by the replacement of a sensitive by a resistant population of bacteria in the individual. Using bacteriophage typing the authors consider there was no evidence that the change from sensitiveness to resistance was due to mutation, but was more likely to be due to a suppression of sensitive strains which were supplanted by resistant ones.

Their experience on two farms is of particular significance. These two farms had instituted feeding a proprietary food containing chlortetracycline* in an attempt to control calf scours. For a year this had been highly successful, but infections then recommenced: they were due to strains of *Bact. coli* resistant to chlortetracycline.

Evidence of this sort justifies an attitude of caution, and of resistance to the widespread and indiscriminate use of antibiotics. It should be an answer to those who accuse us of being motivated merely by considerations of self interest; and we would draw the attention of one of our agricultural contemporaries, who recently commented on this matter and our attitude to it†, to this evidence.

Antibiotic treatments have a clear and unmistakable place in more efficient farming, but they are a double-edged weapon. Increasingly the practitioner must seek the help of the laboratory in determining the antibiotic of choice, and he must discourage his clients from the use of powerful agents, the effect of which in the long run may be serious if not supervised. Finally, yet again, it must be emphasised that antibiotic prophylactic treatment cannot be the substitute for better husbandry.

* Aureomycin.
† "The Farmer & Stockbreeder."

The Sensitivity to Chemotherapeutic Agents of a Further Series of Strains of *Bacterium coli* from Cases of White Scours: the Relationship Between Sensitivity Tests and Response to Treatment

BY

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A PREVIOUS paper (Smith, 1954) contained the results of testing the sensitivity of a series of 58 strains of *Bacterium coli* isolated from different cases of white scours in calves to chemotherapeutic agents. Some of these strains originated from the Reading area and the remainder were isolated from faecal specimens submitted by members of a veterinary practice in Huntingdonshire. All these cases of white scours occurred during the period 1950 to 1953; no difference in sensitivity was noted between the strains received from each of these sources. Before and during this period, the sulphonamides were probably the chemotherapeutic agents most frequently used in treatment but, more recently, the use of other agents, particularly streptomycin, has become more common. In view of this, it seemed worth while determining whether any alteration had taken place in the frequency distribution of strains of *Bact. coli* that were resistant to these agents. Consequently, a further series of 58 strains isolated from the faeces of different cases of white scours that occurred in 1955 in the same Huntingdonshire practice was examined. The results are reported in this paper.

During this study, a rapid plate method of determining the sensitivity to chemotherapeutic agents of *Bact. coli* associated with white scours was evolved. This method is also described.

Materials and Methods

Origin of Strains of Bact. coli

Most of the 58 strains were isolated by plating rectal swabs from cases of white scours in different herds on MacConkey agar. In the few instances in which two strains originating from the same herd were examined, the strains belonged to different phage types and had been isolated from different calves at different times. None of the 58 calves had had any form of therapeutic or prophylactic treatment.

Determination of in vitro *Sensitivity to Chemotherapeutic Agents*

Tube Test.—All strains were tested by the tube method (Smith, 1954).

Rapid Plate Test.—This method was used for the direct examination of faecal swabs from scouring calves. Nutrient agar plates containing 6 per cent. lysed horse erythrocytes to neutralise sulphonamide inhibitors were dried for two hours in a 37° C. incubator with their lids removed and then stored at 3° C. until required. Lysis of the erythrocyte suspensions had been produced by alternate freezing and thawing in distilled water before adding to the nutrient agar at 50° to 55° C. For use, a rectal swab was gently rubbed all over the surface of a plate of medium. Sterile filter paper discs, approximately 0.6 mm. in diameter, containing different chemotherapeutic agents were then placed *firmly* on the surface of the medium at similar distances from each other. Each disc contained either 20 μg. of dihydrostreptomycin sulphate, chlortetracycline* hydrochloride, oxytetracycline† hydrochloride or chloramphenicol, or 130 μg. of sodium sulphadimidine‡. These discs were prepared by placing on them the correct amount of agent dissolved in 1/150 ml. sterile distilled water and drying in a desiccator. The plates were incubated at 28° C. for 18 hours and the zones of inhibition around the discs noted (Plate I). Alternatively, if a more rapid result was required, incubation was carried out at 37° C., readings being made seven to eight hours later. The sensitivity results obtained by the plate test correlated well with those of tube tests carried out on the *Bact. coli* isolated from the corresponding faecal specimens although the sulphadimidine plate results were occasionally difficult to read when the growth of *Bact. coli* was exceptionally profuse.

Phage typing

It is intended to give details of the technique of phage typing employed in another paper. By phage typing it was possible to classify strains of *Bact. coli* into a large number of types which facilitated epidemiological studies.

Results

The sensitivities of the 58 strains of *Bact. coli* to sulphadimidine, dihydrostreptomycin, chloramphenicol, chlortetracycline and oxytetracycline are shown in Table I. The results of the 1950-53 survey are included in brackets for comparison. The most significant difference between the results of the two surveys was the higher proportion of strains found to be resistant to one or more of these chemotherapeutic agents in the present survey than in the previous one. Thus, 15 strains were completely resistant to sulphadimidine compared with nine previously, 11 were resistant to dihydrostreptomycin compared with one, and two strains, from different herds, showed high resistance to chlortetracycline and oxytetracycline. The minimal inhibitory concentrations of chlortetracycline and oxytetracycline required to

* Aureomycin.
† Terramycin.
‡ Sulphamezathine.

TABLE I

THE SENSITIVITY TO CHEMOTHERAPEUTIC AGENTS OF 58 STRAINS OF *Bacterium coli* ISOLATED IN 1955 FROM CASES OF WHITE SCOURS

Chemotherapeutic agent	Number of strains for which minimum inhibitory concentration in μg.* per ml. was										
	>256	256	128	64	32	16	8	4	2	1	0·5
Sulphadimidine ...	15 (9)	0 (0)	0 (0)	1 (1)	0 (2)	0 (2)	8 (4)	16 (15)	13 (20)	5 (5)	0 (0)
Dihydrostreptomycin ...	11 (1)	0 (0)	0 (0)	0 (0)	0 (1)	0 (4)	4 (5)	20 (23)	19 (21)	3 (2)	0 (1)
Chloramphenicol ...	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (2)	5 (17)	46 (18)	7 (16)	0 (5)	0 (0)
Chlortetracycline ...	0 (0)	1 (0)	0 (0)	1 (0)	0 (1)	0 (7)	7 (26)	40 (23)	9 (1)	0 (0)	0 (0)
Oxytetracycline ...	1 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (1)	0 (4)	4 (25)	32 (27)	17 (1)	3 (0)

The figures in brackets are the results of the 1950–53 survey of 58 strains (Smith, 1954).
* The results for sulphadimidine are expressed in mg. per cent. not in μg. per ml.

inhibit the last two strains indicated that these agents would be of no value in the treatment of diseases caused by those two strains; no such high degree of chlortetracycline or oxytetracycline resistance was noted in the previous survey. All 58 strains in both surveys were sensitive to chloramphenicol.

The Relationship between Plate Sensitivity Testing, Phage Typing and Response to Treatment

Apart from the sensitivity tests performed by the tube method on the 58 strains referred to above, rectal swabs from scouring calves were submitted to the rapid plate sensitivity test and the results considered in relation to response to treatment with chemotherapeutic agents. Rectal swabs were taken from each calf before treatment and as many times subsequently as was thought necessary, 217 swabs from 114 calves being examined in all. Where practical, the sensitivity plates were incubated at 37° C. to make it possible to obtain the result on the same day as the swab was received. At least 10 colonies were also selected from each plate and phage typed. A close correlation was found between clinical improvement and *in vitro* sensitivity of the *Bact. coli* in the faeces to the agent that was employed in treatment. Conversely, lack of clinical response was often associated with the fact that either the *Bact. coli* present in the faeces were resistant *in vitro* to the agent used for treatment or that the sensitive *Bact. coli* initially present were rapidly replaced by resistant ones during treatment. In such cases, a change of chemotherapeutic agent from the inactive one to one found to be active *in vitro* was usually accompanied by rapid clinical recovery. Some of the results noted when streptomycin and chlortetracycline were used were of particular interest and are considered separately.

Streptomycin

Before the necessary information was collated on the sensitivities of the types of *Bact. coli* that were associated with scours in any particular herd, the practising veterinary surgeons who co-operated in these studies usually treated individual cases with streptomycin, ½ to 1 g., twice daily by mouth, occasionally supplemented by 1 g. intramuscularly, until the sensitivity tests on the pre-treatment rectal swabs were available. Clinical improvement did not follow streptomycin treatment in any of all of seven cases in which the *Bact. coli* in the pre-treatment swabs were resistant to streptomycin. Subsequent treatment with one of the agents to which the *Bact. coli* in the pre-treatment swab were sensitive resulted in rapid clinical improvement in six of these cases. In 30 of 44 cases in which the *Bact. coli* in the pre-treatment rectal swabs were sensitive to streptomycin, complete recovery followed streptomycin therapy. The *Bact. coli* in post-treatment swabs of 13 of the 14 cases that did not respond to treatment were found to be streptomycin resistant and to belong to different phage types from the sensitive *Bact. coli* present in the pre-treatment swabs; some resistant *Bact. coli* were also found post-treatment in eight of the cases that had responded to streptomycin therapy. Subsequent treatment of the 14 cases that did not respond to streptomycin with agents to which the *Bact. coli* in the post-treatment swabs were sensitive resulted in recovery in 12 cases; no further information was available on the other two cases. Pre-treatment rectal swabs from 12 scouring calves contained a high proportion of streptomycin sensitive *Bact. coli* and a small number of resistant ones (Plate II). Streptomycin was without effect on these cases and only streptomycin-resistant *Bact. coli*, in very much larger numbers, were found in the post-treatment swabs (Plate III). Phage typing showed that these strains were of the same types as the resistant ones, but different from the sensitive ones, present in the pre-treatment swabs.

Plate sensitivity tests of faecal specimens of a number of calves, scouring and healthy, taken at different times, showed that streptomycin-resistant strains of *Bact. coli* were prevalent amongst the calves in some herds and apparently absent from calves in many other herds.

Chlortetracycline

Plate sensitivity tests revealed that, of all 217 faecal specimens from scouring calves examined by this method, *Bact. coli* that were resistant to chlortetracycline and oxytetracycline were only found in the faeces of calves from the two herds where similarly resistant strains had been found in the survey. From one herd, pre-treatment rectal swabs from 10 of 15 calves that developed scours during a period of two to three months contained, as the dominant flora,

Bact. coli that were all resistant to chlortetracycline and oxytetracycline. In the other herd this type of resistance was a feature of all the *Bact. coli* present in the swabs from 5 of 13 scouring calves. Phage typing indicated that the chlortetracycline-resistant strains from different calves were not infrequently of different types. Further inquiry revealed an almost identical history on both farms. Home-bred and bought-in calves were reared on both premises. Up to 1953, great difficulty had been experienced in controlling white scours on these farms; the owners therefore decided, as a routine, to supplement the diet of all their calves, scouring and healthy, with a proprietary chlortetracycline supplement. Calculations showed that the calves received approximately 250 mg. of chlortetracycline once daily continuously for approximately four weeks. This policy was highly successful until the end of 1954 when the beneficial effect of feeding this supplement was no longer apparent and veterinary advice was sought. Laboratory examination was carried out on pre-treatment rectal swabs of all calves that developed scours with the results referred to above. Treatment based on sensitivity tests was successful. It is noteworthy that on no other farm in the practice were scouring calves discovered from which chlortetracycline- and oxytetracycline-resistant strains of *Bact. coli* were isolated and that no other farmers in the practice were known to feed chlortetracycline supplement to their calves.

Discussion

More strains of *Bact. coli* resistant to chemotherapeutic agents were found in the 1955 than in the 1950-53 survey. This was particularly so in the case of streptomycin. This agent had been commonly employed in the treatment of white scours in the period between the two surveys and it is conceivable that this fact may have been responsible for the increase in the number of streptomycin-resistant strains. The examination of rectal swabs from calves before and after treatment showed that oral administration of streptomycin could result in a profound change in the *Bact. coli* population of the alimentary tract from a streptomycin-sensitive to a streptomycin-resistant one. The phage typing results clearly pointed to the streptomycin acting by eliminating the sensitive strains of *Bact. coli* and selecting out the resistant ones, which then became dominant; there was no evidence of the occurrence of bacterial mutation from sensitive to resistant. It is reasonable to assume then, that in this way, the frequent use of streptomycin may have accounted for streptomycin-resistant strains becoming more prevalent on some farms, and hence for the finding of a greater number of streptomycin-resistant strains in the second survey than in the first. It must also be concluded that the routine use of the chlortetracycline supplement was responsible for the frequent occurrence of chlortetracycline- and oxytetracycline-resistant strains of *Bact. coli* in the calf population of two farms. There was no evidence available to indicate whether this state of affairs might have arisen as a result of selection or mutation. In any case, it cannot be dismissed lightly as the implications might be serious since chlortetracycline and oxytetracycline supplements are now used to a considerable extent in the feeding of some classes of livestock. It is possible that, with the passage of time, strains of *Bact. coli*, and perhaps other bacteria, resistant to chlortetracycline and oxytetracycline might become prevalent on farms when this system is practised, with the result that any clinical disease caused by these bacteria would not be amendable to treatment with these antibiotics.

Although the present investigation does not throw any light on the exact rôle of *Bact. coli* in the aetiology of white scours, the close correlation between the results of the plate sensitivity tests and clinical response to treatment supports the view that *Bact. coli* does, in fact, play an important part in the pathogenesis of this disease. The results also indicate that plate sensitivity tests could be employed with advantage—particularly as they can be performed so rapidly—in determining the correct chemotherapeutic approach to the treatment of white scours on individual farms. The value of these tests is enhanced by the increased number of resistant strains of *Bact. coli* found in the present survey.

Summary

1. Of 58 strains of *Bact. coli* isolated from cases of white scours occurring in calves on different farms in 1955, 15 were resistant *in vitro* to sulphadimidine, 11 to streptomycin and two to chlortetracycline and oxytetracycline; all were sensitive to chloramphenicol. The proportion of resistant strains was higher than in a similar survey conducted in 1950-53. The significance of this observation is discussed.

2. Further studies revealed that resistant strains of *Bact. coli* were commonly associated with cases of white scours on some farms but not on others. For several years it had been the practice, on the only two farms where chlortetracycline- and oxytetracycline-resistant strains were found, to feed a chlortetracycline supplement to all calves for the first month of life.

3. The alteration of the *Bact. coli* population of the alimentary tract of some scouring calves from streptomycin sensitive to resistant as a result of streptomycin treatment, traced by sensitivity testing and phage typing, indicated that the process was one of selection and not mutation.

4. A rapid plate method of determining the sensitivity of *Bact. coli* in the faeces of scouring calves was developed, which enabled a result to be obtained on the same day as the faecal specimens were received. A close correlation existed between the results of these tests and clinical response to treatment.

Acknowledgment.—It would not have been possible to carry out these studies without the co-operation of Messrs. Beach, Hall and Roddis, MS.R.C.V.S., of Huntingdon; we gratefully acknowledge their help.

Reference

SMITH, H. WILLLIAMS. (1954). *Vet. Rec.* **66**. 42.

(*Please note addendum at foot of col.* 1, *page* 277)

H. WILLIAMS SMITH & W. E. CRABB—THE SENSITIVITY TO CHEMOTHERAPEUTIC AGENTS OF A FURTHER SERIES OF STRAINS OF *BACTERIUM COLI* FROM CASES OF WHITE SCOURS: THE RELATIONSHIP BETWEEN SENSITIVITY TESTS AND RESPONSE TO TREATMENT

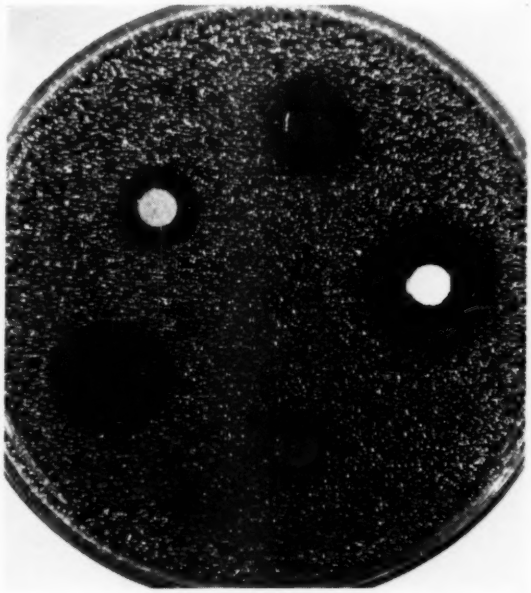

PLATE 1.—Rapid plate sensitivity test of *Bacterium coli* in rectal swab of scouring calf. Five chemotherapeutic agents studied.

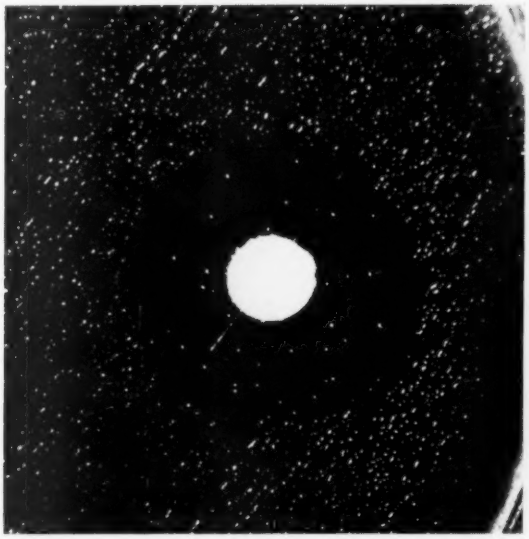

PLATE 2.—Section of sensitivity plate illustrating that the vast majority of the *Bacterium coli* present in the pre-treatment rectal swab of a scouring calf were sensitive to streptomycin; a few resistant colonies of *Bacterium coli* can be seen within the inhibitory zone. This calf showed a temporary clinical improvement following treatment, and then relapsed.

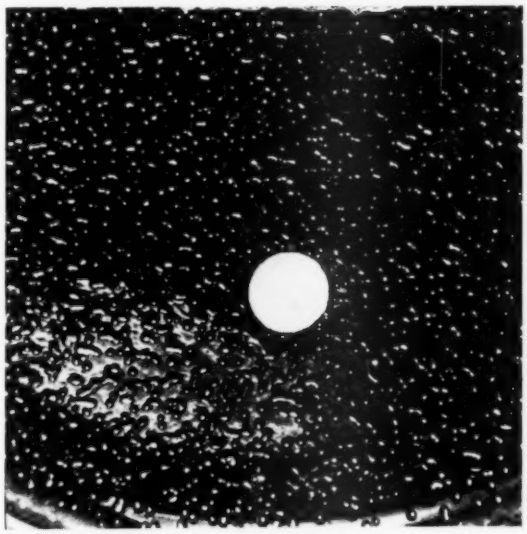

PLATE 3.—Section of sensitivity plate prepared from a rectal swab taken from the same calf as in Plate 2, but *after* streptomycin treatment. All the *Bacterium coli* present are now resistant to streptomycin. (They are of the same phage type as the few resistant colonies seen in Plate 2.)

A Technique for Cryptorchidectomy in Pigs

BY
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DURING the past few years the writer has been impressed with the notable increase in the clinical incidence of cryptorchidism in pigs.

This increase in a genetically determined abnormality was to be expected following the recent emphasis on pedigree and the selection of sires from a limited number of strains. The greater tendency of farmers to request the operation of cryptorchidectomy is presumably due to improved conditions in the pig industry.

If this is the case, it may be suggested that, given surgical technique of high standard to ensure minimum post-operative morbidity and mortality losses, the impetus given by present circumstances for performance of the operation will continue.

Previously, the writer employed traditional methods for castration of the cryptorchid pig. In the light of experience, especially when operating at owners' premises, these methods were found to be cumbersome. The following technique has, therefore, been devised.

Pre-operative instruction

Despite the fact that the operation has been performed on an animal four hours after a normal meal, the writer recommends that all food be withheld for 48 hours, water being supplied *ad lib*.

Instruments

The following surgical equipment has been found sufficient in all circumstances: hypodermic syringe; scalpel; self-retaining retractor (Doyen's pattern); two artery forceps; one Lane's tissue forceps; a 3 m.m. diagnostic lamp 12 inches long; needle holder; full curved surgical needles: and No. 4 monofilament nylon.

Anaesthesia

Pentobarbitone sodium B.P. administered intraperitoneally at a dosage rate of 1 c.c. per 4 lb. bodyweight is recommended. Although this dose is in excess of the recommended pharmaceutical dose it appears to be optimum at this latitude.

The Operation

Surgical anaesthesia having been obtained, suitable lengths of rope are attached above each hock. The free ends of the ropes are carried over a beam or rafter, and the pig is raised clear of the ground until the operation site is at eye-level. The hind limbs are slightly abducted, and the free ends of the rope secured. No untoward effects have ever been noted in any pig so suspended. The operation site is cleansed with deosan liquid 2 per cent. solution, and sterile cloths are unnecessary.

In pigs from 30 to 40 lb. bodyweight the incision is commenced at approximately 1 inch below the external inguinal ring, continued for 1 inch to 1½ inches downwards through skin, muscle and peritoneum, and then the retractors are applied. When the inspection light is introduced through the incision, the intestines are noted to be well dropped, leaving the exploration site in view and thus allowing the cryptorchid testicle, even when abnormal, to be easily seen and picked up. The testicle is withdrawn from the abdomen, the cord ligated, and the testicle removed.

The muscle sheath, muscle and peritoneum are closed by all-in interrupted sutures, and the skin by interrupted sutures. Due to the posture of the animal, apposition of the edges of all incised tissues is facilitated so that tight closure is readily obtained.

The above technique has been employed at the surgery, and at the owners' premises with equal facility and success. It has been used in some 50 cases, in pigs ranging from three to five months old. There has been no noticeable set-back, post-operative disability, or mortality.

The technique can be applied to bovines up to the age of six months. The only difference is that the animal is suspended only in order to locate the testicle.

Williams Smith and Crabb

Addendum.—Since this paper was prepared, three farms have been observed in which all calves were treated prophylactically with either streptomycin, sulphaguanidine or oxytetracycline. For varying periods of time, complete control was obtained over white scours by this technique, but now the beneficial effect is no longer apparent. Bacteriological examination of the faeces of calves now suffering from white scours on these farms has revealed that the *Bact. coli* they contain are resistant to the agents that had been used prophylactically: at one time or another the three agents had been employed and, in some cases, the predominant *Bact. coli* present are now resistant to all of them. These observations confirm the dangers that may accompany the prophylactic chemotherapy of white scours. Not only does the practice predispose to drug-resistant strains becoming prevalent on farms but, should the alimentary tract of a healthy calf contain a very small number of drug-resistant *Bact. coli*, prophylaxis may depress the more numerous sensitive *Bact. coli* also present allowing the resistant ones to become predominant. Thus if the factors that precipitate white scours come into play some time after prophylaxis is commenced a completely drug-resistant *Bact. coli* flora may then be present in the alimentary tract rendering treatment ineffective.

Reindeer in the Scottish Highlands

AT the October (1955) meeting of the North of Scotland Division, members, their ladies, and visitors heard talks on Reindeer given by members of the Reindeer Council of the United Kingdom. They also inspected, at the Silver Mount Lower Corral in Glenmore Forest, the small herd of reindeer which have been imported into Britain. The following is a résumé of the talks and discussion.

In introducing the subject, Mr. M. N. P. Utsi, technical adviser of the Reindeer Council, and managing director of the Reindeer Company, Ltd., described how, on his first visit to Scotland in 1947, the configuration of the Cairngorms and the abundance of lichens under the heather suggested to him the possibility of reindeer-breeding in the Highlands. On later journeys he found *Cladonia rangiferina*, *Cladonia sylvatica* and dozens of other ground and rock lichens, edible by reindeer, over a large area. The answer to the frequent question, "What is behind the experiment?" was, therefore, from his point of view, the idea that an important natural resource, Scottish lichens, ought to support an animal useful to man. Reindeer meat is popular in Scandinavia, Germany and America, and it is sold in Britain too. Reindeer skin can be tanned as chamois leather and used for soft gloves of first-class quality. Jackets, bags and rucksacks can also be made of tanned reindeer skin. Reindeer hair is imported into England from Scandinavia in large quantities (10,000 lb. a year by one firm) to stuff upholstery; it is also mixed with other fibres for textiles. Reindeer sinews make strong thread which is the best for sports clothing. Reindeer antlers are used for many crafts, and for ornaments. The current price paid by meat buyers to reindeer farmers in Sweden for full-grown males is from £10 to £16 per head.

Reindeer existed in Scotland for centuries, and seem to have died out, or been killed off, about the 12th century. Later experiments in re-introducing them had been in the nature of bringing in a few strange animals as a matter of interest; there had been no attempt, so far as the speaker knew, at herding or study. It was, perhaps, too early to speak about the future, but he was convinced that reindeer could live in Scotland, provided they were given legal protection as domestic animals.

Dr. E. J. Lindgren, M.A., Honorary Secretary of the Reindeer Council, distributed a brief account of the formation of the Council and the history of the experiment in Scotland to-day. The main contents may be summarised.

On June 2nd, 1949, a number of arctic experts, travellers, Scotsmen interested in Highland development, and others, met in London to inaugurate the Reindeer Council of the United Kingdom. The Council's immediate concern was to take advantage of the offer of 25 first-class breeding and draught animals from northern Scandinavia, to be transported to the British Isles and cared for by trained herders for a minimum of three years, without cost to this country. In March, 1951, the Secretary of State for Scotland informed the House of Commons that the Government were prepared, "as an exceptional arrangement in view of the possible advantage to the Scottish economy, to authorise the import of 25 reindeer from Sweden."

Eight "mountain" and 10 "forest" reindeer were imported in 1952. Recovery from four to six-and-a-half weeks' urban quarantine proved the main problem in the first year. During the warm and wet summer of 1953 insects were sometimes very troublesome and several reindeer died or were weakened by fly-strike, restrictions on smudge-fires near heather making the smoke-protection method difficult. Seven more reindeer joined the herd in 1954, and two bulls were added in May, 1955. The herd did well on higher land and the Department of Agriculture agreed to extend the experimental period to the autumn of 1956.

Apart from two deaths in quarantine and two immediately following, three reindeer were lost by accidents, two disappeared, and four suddenly sickened from unknown poisoning. Two died some weeks after infestation by red deer parasites. A dead calf was removed by a caesarean operation by Messrs. A. J. MacLennan and A. Riggs, veterinary advisers to the Reindeer Company, the cow appearing to make a complete recovery. Most of the present herd seem to have acquired a considerable degree of acclimatisation.

Mr. Brotherston's Address

Mr. William Brotherston, B.L., honorary treasurer of the Reindeer Council, gave an address on the origin and main developments of the experiment. He referred to initial difficulties largely resulting from the severe effects of quarantine on the animals, with consequent casualties, and to the importance of the new spray insecticide technique evolved by Mr. Utsi in 1955, thus apparently solving the summer-fly problem. The animals, as members of the Division had seen that day, were now thoroughly fit and acclimatised. If the calving next year proved successful—and there seemed no reason to anticipate the contrary—Mr. Brotherston hoped it would be possible to obtain permission and support for a pilot commercial scheme whereby the commercial value of reindeer as "substitute cattle" could be proved. Reindeer could be run without any additional winter feeding on suitable hill ground, particularly in the further North and West (*e.g.*, Sutherland) where only a fractional number of cattle could be carried through the winter period. It was for just such areas, or on the high ground isolated by Forestry Commission planting, that he considered reindeer could form a valuable addition to the North of Scotland hill farming economy.

Mr. Utsi's Address

In the course of his talk Mr. Utsi said:—

The Present Herd

" The herd consists of 13 reindeer: three bulls, two oxen (gelded when three or four years old), seven cows aged between two and a half and five and a half years and one calf. They are northern Swedish reindeer, and all except two are from my mountain breed.

" The only abnormal feature among the reindeer is Tilla's dim right eye. A few days after this cow and another forest reindeer reached Rothiemurchus following quarantine they began to have slight eye trouble. A penicillin salve was used, on veterinary advice, and the condition seemed to clear up temporarily. But Tilla has still the one dim eye and is, perhaps on that account, thinner and more nervous than the others.

" Only three cows were in calf this spring because the best bull was lost in October, 1954, through an accident. Its antlers caught in a roll of netting wire and it was blown into a small loch, where it drowned. The rutting season had run about half its course, but younger females often come into rut later and these were not covered.

Diet on the Reserve

" When the reindeer were, at first, on 300 acres of Rothiemurchus Forest they had several kinds of lichens at their disposal, though the pasture had been a good deal trampled by a large herd of red deer just before the fence was finished. Something seemed to be lacking, however. When a bull was ' pining ' early in 1953 Mr. Sharman suspected cobalt deficiency and Mr. MacLennan prescribed dosing, but the animal disappeared. Cobalt had been available to the reindeer since the first summer (1952) in mineral licks, but not all used them. During his inspection for the Department of Agriculture for Scotland in July, 1953, Mr. P. L. Shanks referred to the possibility that the pastureland might lack cobalt, and this condition was confirmed through an investigation conducted by the Macaulay Institute for Soil Research. Cobalt was then given orally, in monthly doses at first, but less frequently on the higher land above Loch Morlich where the general condition of the reindeer was much improved.

" The animals have also been offered rock salt, ewe cubes, grain balancer fattening cubes, and lately rolled oats mixed with flaked maize as recommended by the London Zoo. They eat such foods from time to time. A few appear particularly keen to chew the bones and antlers of red deer, reindeer antlers, and bird bones which they happen to find on the ground. They have even been seen to lick black peat during the rutting season, as they sometimes do in Sweden. From late July to early September they are fascinated by mushrooms and will eat some rather poisonous types when they are fenced in.

" The main year-round diet remains, nevertheless, the numerous lichens which abound in the Cairngorms. A few grasses, fresh leaves of birch and willow when available, the leaves of blaeberry and occasionally other small plants are welcomed, especially in spring and summer for variety, or when there is no choice.

On the present Forestry Commission land red deer parasites have given no trouble, but *Lipoptena cervi* and *Hypoderma diana* caused the deaths of at least two reindeer in the lower Rothiemurchus forest. The fact that the reindeer were then already in poor condition may have made them more susceptible.

" Several kinds of insecticides and repellents have been tried. The most promising up to now is an extract marketed as " Pybuthrin " which was advised in the light of a memorandum we compiled on the special summer problems of reindeer. A spraymaker* was also recommended which can be pumped up in advance and thus used without first catching the animals and risking injury to the growing antlers with lasso and handling. An untouched animal attracts fewer flies, in my experience.

" Because of the vulnerability of the growing antlers it might be worth trying to de-horn reindeer, in the same way as cattle, especially as much of their energy goes into antler-building at this time of year."

Address by Dr. Lindgren

In judging the set-backs and degree of achievement of the experiment in its first three and a half years it must be remembered that it began by being hedged round with a formidable list of conditions, laid down by four government departments or institutions. These conditions excluded, in practice, several areas more promising than that where the experiment began, and prevented or restricted a number of measures which would normally have been adopted to improve the health of ailing reindeer. But detailed observations carried out by various experts† during the first year and a half of the experiment made possible two main changes.

For one, the Reindeer Company must thank especially their veterinary advisers, Messrs. MacLennan and Riggs of Inverness, who, besides giving prompt help in several crises, had approached the whole venture in a notably fair-minded spirit from the outset. The same applied to Mr. G. A. M. Sharman and Mr. T. Graham Marr of the Veterinary Investigation Department of the North of Scotland College of Agriculture, who pursued various research topics with unvarying interest and zeal. As a result of a constant and frank interchange of data between Mr. Utsi, the Council and the Company on the one hand, and these four veterinary surgeons and other scientific workers on the other, Mr. A. J. MacLennan was able to make a statement for quotation to the authorities, which led to the reindeer being permitted to graze unfenced. Mr. MacLennan had written (October 31st, 1953):—

" As regards danger to other animals while on unfenced grazing I feel that in spite of the number of deaths which have occurred, particularly this summer, in no case could the cause of death be attributed to any contagious or infectious disease which might have been introduced by the reindeer." It had been rather the unsatisfactory conditions at the Rothiemurchus Reserve, especially in hot weather, when the animals were tormented by biting flies. With " the exception of losses directly due to fly-strike, the losses to date may all be accounted for by these reindeer acquiring acclimatisation. . . The only conditions

* The Nesthill Spraymaker.

† See Reindeer Council (1955).

Mr. Utsi with two reindeer oxen. A third reindeer is in the background.

which might be considered transmissible would be parasitic conditions, *e.g.*, warble fly and possibly the deer nostril fly. Treatment of the infected deer in the spring readily controls any danger from warble fly. The possibility of deer nostril fly infestation should prove no more serious menace under conditions of herded grazing than under the present fenced grazing."

The second change concerned the relation between reindeer-breeding and forestry. Mr. Utsi had always insisted that reindeer, in contrast to red deer and roe deer, do no injury to conifers, and the Forestry Commission allowed this to be put to the test. The Reindeer Company was first allowed to fence 70 acres of land beside the Rothiemurchus Reserve, including some young growth, and the herd spent there 270 days in all. Mr. David Robertson, Forester of Queen's Forest, Glenmore, recorded that no damage to the trees was detected. This was stated also in a letter from Mr. A. H. H. Ross, Director of Forestry for Scotland, to the chairman of the Reindeer Council.

Discussion

Mr. A. J. MacLennan opened the discussion. Referring to the veterinary problems associated with the reindeer he recalled that the summer of 1953, one year after the reindeer first arrived at Rothiemurchus, was the blackest spot in the history of the experiment. Many of the troubles were either directly or indirectly associated wih biting flies, particularly *Hydrotaea irritans*. The reindeer in the original compound at Moormore were viciously attacked and had no way of escape. Accidents resulting in fractures of bones, and general septicaemia following numerous skin abscesses, were responsible for several deaths. Many fly repellents were used but were not conspicuously successful. The problem was solved when the reindeer were permitted access to part of Cairn Gorm and Cairn Lochan, where above the 2,000 feet line *Hydrotaea irritans* is not a serious menace. There were other deaths during that period some of which remained undiagnosed. One appeared to be due to a plant poison, though confirmation was not obtained. Another was indirectly associated with a previously fractured lower jaw following which dental abscesses developed at the fracture resulting in septicaemia and death. In 1954 it became necessary to remove a dead calf from one of the reindeer cows by caesarean section. This operation was carried out under deep narcosis by intravenous chloral hydrate. Approximately 2 drams of chloral hydrate in a 10 per cent. solution were introduced slowly into the jugular vein with the animal in the standing position. It went down without any struggling and injection was continued to the stage of deep narcosis. The chosen site for the incision was low down in the right flank and this area was infiltrated with local anaesthetic solution. The operation itself presented little difficulty and the cow made an uninterrupted recovery. She is probably again mated and it will be interesting to see if she produces a normal calf this spring.

Mr. G. A. M. Sharman, the second opener of the discussion, mentioned that the area around Rothiemurchus is known to be cobalt deficient, and analysis of soil from the original reindeer reserve confirmed the presence of a cobalt deficiency. Mineral licks including cobalt placed in the reserve appeared to remain untouched, and in the late summer and autumn of 1953 a number of the reindeer were dosed at intervals with cobalt sulphate solution with what were considered beneficial results.

In December, 1953, and in January, 1954, two reindeer died from lesions in the spinal canal probably arising from infecting larvae identified as the larvae of *Hypoderma diana*—the warble-fly which attacks red deer. On *post-mortem* examination numerous first and second stage larvae were found beneath the skin of the back, loins and sides. It had been suggested that the blood-stained oedema of the epidural space was the result of migration of larvae by their normal route, an abnormal reaction being produced in the allied but yet foreign host, the reindeer (Kettle & Utsi, 1955). Now that the reindeer had become acclimatised and were able to climb above the " fly line " it was not anticipated that further losses would occur from warbles.

References

KETTLE, D. S., & UTSI, M. N. P. (1955). *Hypoderma diana* (Diptera, Oestridae) and *Lipoptena cervi* (Diptera Hippoboscidae) as Parasites of Reindeer (*Rangifer tarandus*) in Scotland with Notes on the Second-Stage Larva of *Hypoderma diana*. *Parasitology*. **45**. 1 & 2. May. 116–120.

REINDEER COUNCIL OF THE UNITED KINGDOM. (1955). Fifth Annual Report, Cambridge.

Symposium on the Neurohypophysis

The Colston Research Society of Bristol—a private organisation—provides funds for an annual symposium at the University of Bristol, the field of discussion being chosen in rotation from each of the five faculties of the University. The precise subject is always one in a state of rapid development, and one to which workers at Bristol are actively contributing. Such a symposium, on the Neurohypophysis, was held recently (April 9th to 12th) under the direction of Professor H. Heller, Department of Pharmacology; the organising secretary was Dr. R. J. Fitzpatrick of the same department. Participation was strictly limited to some 60 scientists with an active interest in the subject, coming from no less than 10 different countries. Those invited to the symposium included seven scientific workers with direct veterinary interests, of whom five were veterinary surgeons.

In welcoming the participants the director reminded his audience that it was 50 years ago (1906) that H. H. Dale discovered—by accident—the oxytocic action of posterior pituitary extracts. Sir Henry Dale himself then opened the symposium with a fascinating paper in which he surveyed the history of the subject from the first demonstration of biologically active principles in the pituitary to the recent synthesis of the active polypeptides. He concluded in " path-finding " vein, by presenting a most stimulating analogy between hormonal secretion by the nerve cells of the neurohypophysis, and the chemical mediation of nerve impulses in other body systems.

The remainder of the first session was devoted to papers on morphological studies read by Professors W. Bargmann (Kiel) and B. Hanström (Lund) describing respectively the histological evidence for the site of the elaboration of the post-pituitary hormones in mammals, and the similarity of the architecture of neurosecretion systems in vertebrates and invertebrates (insects and crustaceans). An animated discussion followed in which Dr. P. Jewell of the Royal Veterinary College, London, figured prominently.

On the second day, papers of predominantly chemical interest were read and discussed (Professors H. B. van Dyke, New York; C. Fromageot, Paris; and Croxatto, Chile). They dealt with the storage and liberation of the posterior pituitary hormones under different physiological conditions, together with their chemical structure and that of similarly active substances obtained from blood. Following this a session was devoted to papers by Professors Heller (Bristol) and Noble (London, Ontario) on the inactivation of these hormones by tissues and their excretion by the kidney under various conditions.

So far the sessions had been arranged around the more fundamental aspects of chemistry and morphology although both in papers and discussion the interpretation was always on physiological function. In the remaining two days of the symposium the papers were to deal with more direct studies of the neurohypophysis and its control of body functions: and in almost every paper very new concepts were advanced.

They included a paper on the possible rôle of vasopressin in maintaining blood pressure after haemorrhage (M. Ginsburg, Bristol), and another on the possible action of oxytocin on kidney function (Mary Pickford, Edinburgh, with F. Brooks, Philadelphia). Two revolutionary contributions followed from H. Wirz (Basle) and W. Sawyer (New York) on the precise site and the mechanism of the action of vasopressin on the kidney nephron (whereby animals are able to concentrate urine so that body water may be conserved). Both these authors had formed similar conclusions, at variance with classical renal physiology, although derived in one case from micropuncture of kidney tubules and in the other from clearance studies.

Possibly of greater interest to most veterinary readers of these notes will be papers given during the last two days by three veterinary surgeons: A. T. Cowie (with S. J. Folley, both of N.I.R.D., Shinfield), B. Andersson (Stockholm), and R. J. Fitzpatrick (Bristol). A notable contributor to the discussions on these papers was another veterinary surgeon present, B. Cross (Cambridge). The Shinfield workers gave an admirable survey of the relation of the posterior pituitary hormones to mammary function, and developed among other concepts, the hypothesis that oxytocin, by causing the release of anterior pituitary hormones, is concerned not only with milk ejection but with milk secretion as well. R. J. Fitzpatrick discussed the relation of oxytocin to the function of uterine muscle. He showed in ruminants and man that different zones of the myometrium varied quantitatively in their response to oxytocin under different physiological conditions. The " contrasting " patterns of reactivity seen at oestrus and at term were interpreted in relation to the requirements for sperm transport at mating, and expulsion of the foetus at term. B. Andersson's paper reported new findings with the technique of electrical stimulation of the hypothalamus in goats, using the indwelling electrical stimulators with which this author has worked for many years now. His latest findings concern an area of the hypothalamus, close to those concerned with control of neurohypophysial function, which on stimulation regularly elicits polydipsia—*i.e.*, drinking. As one speaker put it—Dr. Andersson has succeeded in taking an animal to water and making it drink! A film was shown illustrating how such stimulation provokes quite remarkable intake of water in the goat. Thus a very small area of the hypothalamus is concerned with both water intake (drinking) and water retention (vasopressin secretion and hence kidney function).

Three remaining papers dealt with the release of neurohypophysial hormones by drugs (J. H. Walker, Oxford), and the interrelationships of adrenal cortex and the neurohypophysis (R. Gaunt, New Jersey, and I. Chester Jones, Liverpool).

The proceedings, including all discussions, will be published as Volume 8 of the " Colston Papers " (Butterworth Press).

Current Literature

ABSTRACTS

In vitro and _in vivo_ Sensitivity of the Fowl Typhoid Organism _S. gallinarum_ to Antibiotics. GLANTY, P. S., & GORDEUK, S. (1955). *Poult. Sci.* **34** (4). 880–90.

The authors examined the sensitivity of *Salmonella gallinarum* to a number of antibiotics, both *in vitro*, using a sensitivity disc method, and *in vivo*, using experimentally infected hens. The antibiotics used were aureomycin, bacitracin, chloromycetin, penicillin, polymyxin B, streptomycin and terramycin.

The *in vitro* tests showed that the organism was most sensitive to chloromycetin, aureomycin and terramycin, in that order. The *in vivo* tests gave similar results. Thus chloromycetin, given in the mash at the rate of 1 to 2 g. per lb. of mash, gave excellent protection when treatment was started on the day of infection but was less effective when withheld until the onset of symptoms. A relapse occurred when the treatment was discontinued. A dosage rate of 0·5 g. per lb. of mash gave less protection during treatment but there was no relapse afterwards. Aureomycin gave some protection when given at the rate of 1 g. per lb. but was ineffective at 0·5 g. per lb.

The authors suggest that, in view of these results, further investigations should be made into the possible use of chloromycetin for the treatment of fowl typhoid.

The Therapeutic Effect of Streptomycin in Infectious Coryza of Chickens Caused by _Hemophilus gallinarum_. BORNSTEIN, S., & SAMBERG, Y. (1955). *Poult. Sci.* **34** (4). 896–904.

The authors discuss their experience of the use of streptomycin for the treatment of a form of coryza that is associated with infection with *Hemophilus gallinarum*. Affected hens showed a clinical recovery within 24 to 48 hours of a single intramuscular injection of 0·2 g. of dihydrostreptomycin sulphate and their egg yield returned to normal within two or three weeks. Growing chickens showed an equally good response.

The increase in egg production, or in weight gain and appetite in the case of growing chickens, was so rapid that the authors suggest that streptomycin may give some non-specific stimulating effect in addition to the improvement that results from the elimination of the coryza infection.

The Effectiveness of Furazolidone in the Control of Hexamitiasis in Turkey Poults. MANGRUM, J. F., *et al.* (1955). *Poult. Sci.* **34** (4). 836–40.

Turkey poults were experimentally infected with hexamitiasis at two weeks of age and treated by adding furazolidone to their food at the rate of 50 mg. per lb. of food. A group in which treatment was commenced two days before infection showed a mortality of 10 per cent. compared with 67 per cent. in two untreated groups. In another group treatment was delayed until the first death from hexamitiasis had occurred. This group showed a mortality of 27 per cent. Fewer *Hexamita* were found in the intestines of the treated birds than in those of the untreated ones. The authors conclude that furazolidone is an effective agent in the control of hexamitiasis.

The Effect of Diethylstilboestrol Implantation in the Immature Cockerel on Reproductive Performance at Maturity. Eaton, P. D., CARSON, J. B., & BEALL, G. (1955). *Poult. Sci.* **34** (4). 861–7.

The authors studied the fertility, semen volume and testis size of mature cockerels that had been implanted with diethylstilboestrol at 10 or 11 weeks of age. Cockerels implanted with a paste-like substance containing 15 mg. of diethylstilboestrol differed from the untreated controls only in taking a few days longer to reach their maximum fertility. The subduing effect of the paste treatment appeared to last about five weeks, after which the combs and wattles began to develop and the incidence of fighting increased. The onset of fertility showed a greater delay in cockerels implanted subcutaneously with a pellet containing 12 mg. of diethylstilboestrol, and these birds were slightly less fertile than the untreated controls. The semen volume was markedly reduced but the testis size was unchanged.

Tolerance Studies on Sulphaquinoxaline in Poultry. CUCKLES, A. C., & OTT, W. H. (1955). *Poult. Sci.* **34** (4), 867–79.

The authors state that sulphaquinoxaline is extremely well tolerated by chickens, turkeys and ducks. Thus chickens receiving up to 64 times the recommended dose showed only a retardation of growth. They were unable to produce the haemorrhagic syndrome that has sometimes been referred to as "sulphonamide poisoning." Excessive dosage, such as 0·4 per cent. in the food, was required to produce a prolongation in clotting time, and this dosage gave only a slight increase in prothrombin time. There was no evidence that the drug accumulates in the blood after prolonged dosage.

The Aetiology of an Arthritic Disease of Chickens. COVER, M. S., *et al.* (1956). *Am. J. Vet. Res.* **17** (62). 12–5.

The authors describe a form of infectious arthritis affecting birds of 4 to 12 weeks of age. Affected birds are weak and listless, and show a greenish diarrhoea. Lameness is evident. The hock joints, wing joints and feet are usually enlarged, and contain a tenacious yellow to grey pus. The flexor tendon sheaths are also usually affected. The morbidity may reach 30 per cent. but the mortality rarely exceeds 2 per cent.

Cultural examination of affected birds gave no evidence of infection with bacteria or pleuropneumonia-like organisms, but the disease was transmitted experimentally by the intravenous, intramuscular or subcutaneous inoculation of liver and spleen tissue. Developing chick embryos died six or seven days after injection of the yolk sac with joint fluid from affected birds. Filtration tests suggested that the causal organism was a small bacterium or a large particle virus. Some strains were found to be sensitive, *in vitro*, to achromycin, terramycin, streptomycin and furazolidone, while field reports suggest that some outbreaks have been controlled by the use of aureomycin or furazolidone. In both instances the drug was given in the food at the rate of 200 g. per ton. E.A.G.

(Concluded at foot of col. 1 overleaf)

News and Comment

TO HONOUR PROFESSOR G. H. WOOLDRIDGE

As was mentioned in our account of the recent annual dinner of the Royal College, Professor G. H. Wooldridge has announced his intention of retiring from the College Council on which he has served since 1924.

There must be few members of the profession—if, indeed, there are any—who are equally well known, and it has been decided to open a fund which, at Professor Wooldridge's own wish, will provide a portrait to hang in the Royal College. A few details of his career are appended.

Having graduated from the Royal Veterinary College in 1899 he was immediately appointed tutor. Quite shortly afterwards, at an extremely early age, he was offered the Chair of Veterinary Science at the Royal Agricultural College, Cirencester. There he remained until 1903 when the Royal Veterinary College of Ireland made him its Professor of veterinary medicine.

In 1908 he returned to the London college, being appointed to the Chair of Pharmacology and Hygiene. He became vice-Principal in 1936. During the difficult war years he took a most active part in the life of the College while teaching was carried out, with some difficulty, at Streatley. He relinquished his Chair in 1943, and on his retirement was created Emeritus Professor.

His part in the affairs of the B.V.A. has been a notable one, and he was in turn honorary treasurer, honorary secretary, and finally President (1926-7) of what was then the N.V.M.A. During his long period of service on the Council of the Royal College, besides being President in 1939 and Vice-President in 1938 and from 1940 to 1942, he was also Chairman of the Library Committee from 1944 to 1950, Chairman of the Professional Ethics Sub-Committee, which was responsible for drafting the "Guide to Professional Conduct," and first Chairman of the Preliminary Investigation and Advisory Committee.

A friend writes of him: "Professor Wooldridge is probably known to more members of the profession than any other British veterinary surgeon. He has always taken a keen and sympathetic interest in the scientific attainments and the personal activities of a wide circle of his veterinary friends, very many of whom remember him with affection and esteem from their student days. This interest, far from diminishing, has been intensified since his retirement from the Royal Veterinary College and his recollections of the persons with whom he has been in contact during the course of his very varied and busy life is truly remarkable. His services to the Councils of the Royal College and B.V.A. need no emphasis. It was with great regret that members of the former body learned of his impending retirement."

As our readers well know, the President of the Royal College has already circulated members of the profession inviting donations. A first list of donors is printed below. Further donations, not exceeding £1, may be sent to the Registrar.

List of First Contributors to the Professor Wooldridge Portrait Fund

J. Adamson, Esq., D. H. Aldis, Esq., E. R. Ambrose, Esq., J. Anderson, Esq., L. G. Anderson, Esq., Col. R. M. Bamford, Lt.-Col. J. Bell, Professor W. I. B. Beveridge, Professor G. F. Boddie, A. L. Bragg, Esq., P. G. P. Brain, Esq., Lt.-Col. E. Brown, R. E. C. Bullen, Esq., H. E. Bywater, Esq., Dr. J. Carmichael, G. T. Cattell, Esq., E. G. Conisbee, Esq., Miss A. M. B. Copithorne, Mrs. A. Cotchin, E. Cotchin, Esq., H. A. Crawshaw, Esq., R. C. Crowhurst, Esq., F. T. Day, Esq., Major B. De Vine, T. A. Dobie, Esq., Major A. C. Duncan, F. V. Edwards, Esq., W. P. S. Edwards, Esq., J. T. R. Evans, Esq., C. A. Foden, Esq., F. Francis, Esq., Miss M. J. Freak, Miss M. Fussell, J. S. Garside, Esq., Col. H. E. Gibbs, R. E. Glover, Esq., G. N. Gould, Esq., T. C. Graves, Esq., Dr. J. R. Greig, R. W. Hall, Esq., Miss M. L. Harris, R. W. Hartley, Esq., F. C. Heathcote, Esq., H. F. Hebeler, Esq., G. L. B. Henderson, Esq., S. F. J. Hodgman, Esq., C. G. Hopson, Esq., C. E. Huston, Esq., Miss M. A. Jaques, Miss J. Joshua, W. R. Keily, Esq., Mr. and Mrs. H. C. P. King, G. Knight, Esq., G. H. Leader, Esq., E. W. Little, Esq., W. F. Loveless, Esq., E. F. McCleery, Esq., P. A. McCorry, Esq., Professor J. N. McCunn, F. McD. McKenzie, Esq., W. R. McKinna, Esq., G. P. Male, Esq., H. Matthews, Esq., N. St. C. Mead, Esq., E. Middleton, Esq., W. C. Miller, Esq., Dr. R. F. Montgomerie, T. L. A. Morgan, Esq., C. T. Murphy, Esq., W. Nairn, Esq., J. Newhouse, Esq., W. E. Nichol, Esq., Professor C. W. Ottaway, J. M. Peacock, Esq., J. D. Pemsel, Esq., Col. E. M. Perry, C. H. Perry, Esq., Miss P. F. V. Perrin, J. Pickup, Esq., Professor L. P. Pugh, Major D. S. Rabagliati, Brigadier A. Ralston, W. G. Robinson, Esq., Major F. R. Roche-Kelly, E. A. Rucker, Esq., Professor N. J. Scorgie, Dr. W. Scott, Miss A. M. Scott-Elliot, Miss M. Sheppard, G. V. Short, Esq., H. G. Silcock, Esq., A. Steele-Bodger, Esq., E. C. Straiton, Esq., N. R. Turnbull, Esq., Mrs. A. M. Turner, J. F. D. Tutt, Esq., R. F. Wall, Esq., J. F. C. Ward, Esq., Professor W. L. Weipers, Sir Lionel Whitby, Professor E. G. White, E. Wilkinson, Esq., H. M. Wilson, Esq., Mrs. E. B. Wooldridge, Dr. W. R. Wooldridge, W. H. Wortley, Esq., Professor J. G. Wright.

Experimental Transmission of a Catarrhal Enteritis of Chicks Similar to Bluecomb Disease. SIEBUETH, J. Mc.N., & POMEROY, B. S. (1956). *Am. J. Vet. Res.* **17** (62). 24.

The authors studied a catarrhal enteritis of eight-week-old chickens which resembled bluecomb or pullet disease. Day-old chicks were readily infected when dosed orally with a suspension of the intestines of the affected chickens. Day-old turkey poults showed a similar mortality and depression of growth rate when dosed with the chicken material, but chicks were unaffected by oral dosing with intestinal material taken from turkeys with bluecomb—a disease which is clinically similar to pullet disease in fowls. This suggests that bluecomb in turkeys and pullet disease in fowls have a different aetiology.

The addition of various antibiotics to the drinking water reduced the mortality in the experimental chicks and lessened the depression of their growth rate.

E. A. G.

THE ROYAL VETERINARY COLLEGE ASSOCIATION

The first Annual Dinner of the R.V.C.A. will be held at the College on Derby Day, Wednesday, June 6th. The date has been chosen because of the traditional connection between the great race and the Camden Town school, for in the past it was customary for the students to make their way to Epsom (by devious means) and enjoy the spicy company to be found among the sporting fraternity of the Downs.

The occasion of the Annual Dinner will enable visitors to see the Derby, and then to meet old friends in the evening. Seating will be arranged according to the year of graduation. Country members who are coming by car may find it advantageous to leave their cars at the College, and continue their journey to and from Epsom by train from Charing Cross.

UNAUTHORISED SALE OF PENICILLIN

A visit by an inspector of the Pharmaceutical Society to a dispensary in Settle (Yorkshire) on November 25th, resulted in three veterinary surgeons in practice and trading as a firm in Settle, being fined a total of £3 at Settle Magistrates Court on May 1st.

The three veterinary surgeons were charged with selling procaine penicillin veterinary cerate not under authority of prescription of a registered veterinary surgeon; selling a poison, the sale not being effected by, or under supervision of a registered pharmacist; and selling a poison when not an authorised seller.

For the prosecution it was stated that an inspector called at the dispensary and asked for some penicillin-cerate. He was served by an assistant with the penicillin without any question and paid 15s. When he asked to see the veterinary surgeons, the inspector was informed they were all out; and when asked why she had sold the penicillin, the assistant said she presumed the inspector was a farmer and had previously bought penicillin from the firm. She was aware that penicillin was a restricted substance.

Penicillin, the prosecution continued, was a substance which easily gave immunity and should not be used indiscriminately as it might become ineffective when the time came to use it properly. It was most important it should not be used by lay persons indiscriminately. In fairness to the defendants, it was admitted that they could have sold the poison if they had kept a proper record in a prescription book and labelled it with their names and addresses.

The Pharmaceutical Society regretted having to bring the proceedings, but regarded strict compliance by professional men with the regulations as of the utmost importance.

Counsel for the defendants entered a technical plea of guilty, and said the penicillin preparation was commonly used by farmers. The district was a very scattered one and there had been occasions in the past when they had instructed farmers to call at the surgery, after the veterinary surgeons had called at the farms, as the surgeons could not always carry everything that was required.

The assistant knew most people who called at the surgery but not all of them. Farmers who were not able to call personally sometimes sent their sons and daughters, and when the inspector called the assistant presumed he was a farmer. Technically she was wrong in letting him have the penicillin.

Counsel went on to say that it had been the custom of the partners to instruct farmers how to use the preparation. It would be ludicrous to run out every time a farmer telephoned to say he had another outbreak of mastitis. Unfortunately, none of the veterinary surgeons was present when the inspector called, otherwise he would not have obtained the penicillin.

The presiding magistrate (Mr. J. E. E. Yorke) said the Bench felt there had been a technical slip by the assistant.

TALKING POINT

We think readers may be interested in some matters raised recently by Mr. H. F. Hebeler in his Presidential speech to the Western Counties Veterinary Association. His observations were of more than local interest when he said:—

"I would like to end my address on the subject of man power and the different occupations of the profession. I am one of those who believe that, in the not so distant future, the profession may once again find itself over-staffed—though not to such a degree as previously—and that more members will turn to whole-time employment. One of the pleasant things about the Western Counties Veterinary Association is the way that members in private practice, and those in whole-time employment, get on so well together. At present, the different forms of whole-time employment are well known, but there is no doubt in my mind that as time goes on more and more veterinary surgeons will be employed by Animal Welfare Societies in a whole-time capacity. Indeed, if they are not, the whole structure of the 1948 Veterinary Surgeons' Act may crumble.

"There is, equally, no doubt that, at any rate in the early stages, the same type of friction between these members and private practitioners may occur as happened between different branches of the profession on earlier occasions. While I do not think that in this part of the country we shall see many members so employed, yet I would remind you that they will be members of the veterinary profession and their work, however it may clash in financial aspects with the private practitioner, is essential in the eyes of the public to many of whom 'animal welfare' is almost a religion.

"I would agree that their work is essential, but for this different reason: I would not like to see it done by laymen as at present. Thus I hope members in this type of employment will not be regarded as outcasts by the private practitioner, and that he will try to understand their problems.

"While I am on the subject of Animal Welfare Societies, may I also express the hope that practitioners will do their best to co-operate in any consultative or part-time positions arranged with any of the societies; this may apply especially to rural areas in the South West and failure by practitioners to respond to any invitations might have the most serious results for the profession as a whole."

HOLIDAY EXCHANGE

The following children of continental veterinary surgeons are still hoping for exchange holidays, etc., with the children of British veterinary surgeons. We have been able to make arrangements for quite a number to date, but interested readers are still invited to write to the General Secretary for fuller particulars.

France

Exchanges

15-year-old boy—Angoulême (Charente). Summer, 1956.

14-year-old boy—Montaigu (Vendée). Summer, 1956.

14-year-old boy—Champdeniers (Deux-Sèvres). Summer, 1956.

15-year-old boy—Avranches (Manche). Summer, 1956.

14-year-old boy—Neuvy-le-Roi (Indre-et-Loire). Summer, 1956.

14-year-old boy—Toucy (Yonne). Would like to come to Britain this summer and have English boy there next Easter (1957).

13-year-old girl—Locmine (Morbihan) Summer, 1956.

18-year-old girl—Reims (Marne). Would like to come to Britain this summer and have English girl at Easter.

17-year-old girl—St. Bazeille (Lot-et Garonne. Would like to come to Britain this summer and have English girl at Easter.

Au pair

17-year-old boy, would like to stay in Britain for 10 months but invite an English boy in exchange if desired. He could help British veterinary surgeon in practice, drives car, etc.

Paying Guest

16-year-old girl, mid-July to August 30th—South of England if possible.

Germany

Exchanges

16-year-old boy—Grebendorf-Eschwege (Hessen).

18- and 16-year-old boys (brothers)—Fleckeby (Schleswig-Holstein).

Italy

Exchange

14-year-old boy—Florence, Italy.

THE IMPORTANCE OF DIAGNOSIS

We publish below the text of a letter which has recently been circulated to the daily and evening newspaper press:—

There has just been printed in our official journal, THE VETERINARY RECORD, a letter drawing attention to the danger of giving home treatment to dogs suffering from tuberculosis. The letter points out the risk of this disease being passed from pet dogs to human beings—especially children, as treatment with certain drugs, though successful in some canine cases, may leave a residue of latent infection against which the same drugs are not effective should the infection pass to a human being.

May I suggest to your readers that one way to minimise such dangers (for tuberculosis is by no means the only disease communicable by animals to man) is to be sure that ailing pets are taken for examination to qualified veterinary surgeons. Their long scientific training, leading to qualifications (M.R.C.V.S., B.V.Sc., etc.) comparable with those of the medical profession, provides an assurance of the accuracy of their diagnoses. In many widely publicised free clinics, veterinary surgeons are not employed.

TRANSATLANTIC TALK

The immediate past-President of the Lancashire Division, Mr. D. D. Ogilvie, addressed his colleagues in a novel fashion, recently. Having taken up a professional appointment in the United States he recorded a Presidential speech in New York, sent it by air-mail to Liverpool, and it was played by gramophone at the Division's annual general meeting. The hon. secretary of the Division refers to it as "natural and lifelike," and those who are familiar with Mr. Ogilvie's racy style will, we think, agree. Part of his speech was as follows:

"I've been to a number of veterinary meetings since I got here and maybe you'd like to hear about them. First I went to a meeting of the New York City Veterinary Association. It pulled in an attendance of 110 and in some ways rather reminded me of a gathering of the Central in London but it differed in timing. Firstly it didn't start until 9 p.m. Then it opened with the paper of the evening on heart disease, mainly vegetative endocarditis, in the dog, went on to discussion, and was about to turn to business at 11.15 p.m., when I left for home and bed.

"The next meeting I attended was that of the Long Island Veterinary Association which was held, not inappropriately, at McClusky's Steakhouse in Sunrise Village. Some 60 of us sat down to dinner in this distinguished locale at 9 p.m. The meeting opened at 10.20 p.m. with a film which had been specially made to tell the public about the veterinary profession which it did without undue modesty. Then at 10.50 p.m. Professor Stevenson of Cornell University gave an address on distemper vaccination which ended at 11.20 p.m. Discussion went on until 11.45 p.m. when the President called the meeting to order and announced the commencement of the business part of the proceedings. He did allow one of his committee reports to lie on the table at 12.10 a.m. because, he said, it was getting a little late and he finally adjourned the meeting at 12.20 a.m. I was about to take myself somewhat wearily away—all this after a heavy day, a four-course dinner and immersion for several hours in steam heating at about 80°—when he suggested that I might like to stay to the Council meeting as an observer. This finished at a quarter to one in the morning! When he asked me how it all compared with the Lancashire I told him that our proceedings were not dissimilar but that we had a by-law which made it obligatory to complete our meetings on the day on which they started.

"Veterinary science and the veterinary profession are prospering over here. Fees are high, returns are good, and most people in practice are not dissatisfied. Of course, there are somewhat more farm animals per veterinarian in the U.S.A. than in Britain, actually about 12,000 per man, against 10,000, and the American veterinarian benefits from the 22½ million dogs in this country as against about 3 to 4 million in Britain. He also does much more with poultry, a huge industry with over 1,200,000,000 broilers produced every year and nearly 50,000,000 turkeys. Additionally he is permitted—rightly or wrongly—to be much more of a business showman. He generally has a smart hospital as the centre of his business, usually a nice piece of real estate set up on a busy road corner and well illuminated with neon lighting and signs. All veterinarians work from what they call their offices, advertise without much in the way of restrictions, and so far as I can discern are free from too much trouble from charitable organisations and other awkward competitors!"

THE NATIONAL STUD

In view of press rumours that the Racecourse Betting Control Board might take over the National Stud, *The Times* last Tuesday published the following statement from the Ministry of Agriculture:

"The policy for the National Stud is under review following the report of the Loraine Committee which was published last July; and so is the organisation of the National Stud.

"Various possibilities are being considered, and confidential discussions are proceeding with various bodies. No decisions have yet been taken by the Ministry and therefore we cannot make any statement at this stage about any of the discussions, or the bodies with which we are discussing."

It is understood that among the "various possibilities" mentioned by the Ministry spokesman as being under consideration are the setting up of the stud as a corporation, placing it under trustees, or leaving it, as at present, under the Ministry.

RESIDENCY IN PATHOLOGY

The Angell Memorial Animal Hospital of Boston, Massachusetts, announces a Residency in Pathology for the term of 12 months, or more, consisting of supervised work in gross pathology and histopathology as applied to small animals. Included is an opportunity to attend lectures in pathology at Harvard Medical School and certain other lectures on pathology and related subjects in Boston.

The Residency in Pathology is to be filled about August 1st, 1956. The exact time can be altered slightly to suit the convenience of the applicant. The minimum salary is $3,000 per annum. Additional salary might be possible, but only to a veterinarian already having advanced training in this clinical phase of pathology. Quarters are supplied for an unmarried Resident.

Anyone who may be interested in this offer is invited to communicate with Dr. Gerry B. Schnelle, Chief of Staff, Angell Memorial Animal Hospital, 180, Longwood Avenue, Boston 15, Massachusetts.

A TOUCH OF NATURE

"A touch of nature," wrote Pope, "makes the whole world kin," and we experienced a somewhat shamefaced fellow-feeling for Soviet editors who, recently, have been called to task for fearing to publish criticism. *Pravda* has accused them of "valuing their Philistine peace" (*sic*) above the welfare of the party, and even of "a talmudistic writing in the clouds," whatever that may be. One editor, Comrade Simkin, is personally comminated for "removing from his newspaper all sharp, critical material"!

From correspondence occasionally received it appears that THE RECORD penetrates the iron curtain. We trust that the faithfulness with which we publish our readers' "sharp critical material" of the shortcomings they find in the journal will prove to *Pravda* that in this, at least, we rigidly toe the party line.

THE HAMPSHIRE CATTLE BREEDERS' SOCIETY

A preview of the results of the Hampshire Cattle Breeders' Society for the past year shows an increase in activity which is regarded as being very satisfactory. First inseminations totalled nearly 48,000, an increase of nearly 7,000 on the previous year.

Membership rose by nearly 300 and the average number of cows inseminated per member was 12.8. Breed demand did not alter very much from the previous year, apart from the use of Aberdeen Angus which more than doubled, rising from 3.9 per cent. to 7.3 per cent. of the total first inseminations. Hereford, Friesian and Ayrshire demand increased slightly at the expense of the remaining breeds.

There was an increase in the use of nominated services which rose by over 1,100 in the year to 8.6 per cent. of the total as compared with 7 per cent. in 1954. The biggest demand for nominated services came from Friesian herds, while the least was for Guernseys. The latter breed still holds its own throughout the county and the Isle of Wight.

Several bulls purchased in 1951 and 1952 now have their first A.I. daughters in milk and arrangements are to be made to inspect as many daughters as possible with the object of assessing the breeding value of the sires.

The second stage of the experimental service for pigs has been running since October, and between 50 and 60 pigs have been inseminated each month. By the end of March, notification had been received of 12 litters born as a result of these inseminations. Litter sizes varied from 2 to 16, with an average of nine born, six reared. The average reared would have been larger but for one litter of 16 born dead and another litter of nine born alive but killed by the dam.

A report from an Isle of Wight member who wishes to remain anonymous discloses an unusual occurrence. A shorthorn cow calved a normal calf, which was weaned, but as she did not come down with any milk, she was sold to the local butcher. When the cow was slaughtered she was found to have twin calves inside her about three weeks from being born. On

checking the member's herd record, it was found that this cow had been inseminated twice, the interval between the inseminations being 38 days.

HOSPITALS AS FARMERS

Reference is made, in the latest report on the National Health Service accounts, to the farming activities carried out by a number of hospitals. These activities, which included maintaining pedigree herds, had become in certain cases " a major preoccupation of hospital authorities," and they are to be stopped. The Ministry of Health, the report says, has no authority to run farms, and therefore the Ministry's hospitals have none.

The purpose of the farms, presumably, was to help provide fresh food for the patients, and to give those physically able, something to do during convalescence. It appears that the farms were surprisingly successful, and made a profit, last year, of no less than £140,000.

PIG PROGENY TESTING STATIONS

Further details of the scheme to establish pig progeny testing stations in Great Britain are announced by the Ministry of Agriculture and the Scottish Department for Agriculture. Stations will be situated at Letchworth, Herts; Corsham, Wilts; Selby, Yorks; Sealand, North Wales; and Stirling, Scotland.

It is hoped to open Selby, hitherto operated by the N.P.B.A., in the early part of next year. The remaining four will open shortly afterwards. Each station will be capable of taking 400 pigs at a time (100 groups of four pigs from each mating). Each pig will have its own pen so that food consumption can be measured accurately.

Danish experience with similar stations has been taken into account but the stations have been specially designed to meet British requirements.

R.C.V.S. LIBRARY ACCESSIONS

Atti della Societa Italiana delle Scienze Veterinaire, Vol. 9, 1955. [Report of Italian Veterinary Congress, Palermo, September 28th, to October 1st, 1955. English Summaries.]

BIHAR. *Animal Husbandry Department.* Annual Administration Report, 1950-3.

BRITISH SOCIETY OF ANIMAL PRODUCTION. Proceedings, 1955.

CYPRUS. Chief Veterinary Officer. Annual Report, 1955.

INTER-AFRICAN BUREAU FOR EPIZOOTIC DISEASES. Fourth Annual Report, 1955.

JOHANNESBURG, City. *Abbatoir and Livestock Market Department.* Report of Director, 1954/5.

LONDON SCHOOL OF HYGIENE. Report on the work of the School for the year. 1954-5.

NEW ZEALAND. *Animal Research Division.* Annual Report, 1954-5.

NEW ZEALAND. *Massey Agricultural College.* Dairy-farming Annual, 1955.

NEW ZEALAND. *Massey Agricultural College.* Sheep Farming Annual, 1955.

NIGERIA. *Northern Region. Veterinary Department.* Annual Report, 1953-4.

OHIO AGRICULTURAL EXPERIMENT STATION. Seventy-fourth Annual Report, 1954-5.

TANGANYIKA. *Veterinary Department.* Annual Report, 1954, Part 2, Research and Statistics.

SEYCHELLES. *Department of Agriculture.* Annual Report, 1951-4.

UNITED NATIONS F.A.O. Joint FAO/WHO Expert Committee on Meat Hygiene. First Report, 1955.

UNITED NATIONS F.A.O. Report of the Council, 22nd Session, 1955.

"THE RECORD" BY AIRMAIL

From time to time our readers overseas ask whether copies could be airmailed to them. The Editorial Committee has given considerable thought to this matter, and has decided that copies may be sent to readers in this way if they feel disposed to meet the costs involved. Below are given some examples of what such costs would be in different parts of the world.

Australia, New Zealand, £11 10s. per annum. India and Malaya, £10 per annum. The United States, Canada and South America, £10 per annum. South, West and East Africa, £10 per annum. North Africa and the Mediterranean area, £8 10s. per annum.

Other quotations to suit individual requirements will be supplied on request, and any member who wishes to make use of airmail is asked to write first to the Accountant at 7 Mansfield Street.

COLONIAL APPOINTMENTS

The following appointments have recently been made in the Overseas Service division, Colonial Office: Mr. M. J. Fitzpatrick, veterinary investigation officer, Northern Region, Nigeria, to be principal veterinary officer (research) in the same Region; Mr. E. P. Rice, assistant director of veterinary services, Kenya, to be deputy director; Mr. F. B. Halpin, who gave up practice in London a few weeks ago, to be veterinary officer, Northern Region, Nigeria.

THE REGISTER OF VETERINARY SURGEONS

The names of the following gentlemen have been removed from the Register of Veterinary Surgeons with effect from May 1st, 1956:—

Allison, Patrick Thomas Martin, Dept. of Agriculture, Palmerston North, New Zealand; Ashe, George Glazebrook, Rural Mail, Te Puke, New Zealand; Chamberlain, Trevor Goth, P.O. Box 196, Thomsons Falls, Kenya; Cockroft, James Edward, 40, Church Street, Feilding, New Zealand; De Villiers, Schalk Willem, P.O. Box 85, de Aar. C.P., South Africa; Kapur, Hans Raj, Bihar Veterinary College, Patna Bihar, India; Knightly, Michael, 902, Moyse Street, Nanaimo, B.C., Canada; Koompirochana, La-or, 88/1, Supang Road, Bangkapi, Bangkok,

Thailand; Lahiri, Jnaneudra Mohan, New Secretariat, 1, Hastings Street, Calcutta, India; Morton, Douglas David, Lemoendoorn, Viljoenskroon, O.F.S., South Africa; Nandi, Sambhu Nath, 9, Hyat Khan Lane, Calcutta, India; Patra, Mohit Kumar, Asst. Disease Investigation Officer, Cuttack, Orissa, India; *Simpson, Leonard Arthur, 92, Ronald Road, Montclair, Durban, South Africa; Sprent, John Frederick Adrian, University of Queensland Veterinary School, Yeerongphilly, Brisbane, Australia; Viljoen, Philip Rudolf, P.O. Box 448, Pretoria, South Africa; Wise, Peter, c/o Veterinary Board of Tasmania, P.O. Box 673E, Hobart, Tasmania, Australia.

* Name removed at the request of the member.

R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession:—

H. H. ABU BAKAR BIN IBRAHIM of Johore. Graduated London, December 11th, 1919; died May 1st, 1956, after an operation at the London Hospital. The funeral took place at Brookwood Cemetery, Surrey, on May 3rd.

H. H. Abu Bakar bin Ibrahim retired from the post of Chief Animal Husbandry Officer for Malaya in 1953.

COLEMAN, Phyllis Marjorie (Mrs.) (*née* Peake), Box 3836, Nairobi, Kenya. Graduated London, July 8th, 1935.

Mrs. Coleman arrived in England in March to spend six months leave, but within a few days she was taken ill and died in the Middlesex Hospital on April 23rd. In accordance with her wish she was cremated at Torquay on April 27th.

PERSONAL

Birth

WEST.—On April 28th, 1956, to Jean and William West, M.R.C.V.S., of Sampford Brett, Somerset, a daughter.

COMING EVENTS

May

16th (Wed.). Annual General Meeting of the Scottish Regional Group of the A.V.T. and R.W's. in the University of Glasgow Veterinary Hospital, Bearsden Road, Bearsden, 2.15 p.m.

17th (Thurs.). Annual General Meeting of the Society of Practising Veterinary Surgeons at the Royal Veterinary College, Camden Town, 2.30 p.m.

Ordinary General Meeting of the South Eastern Division, B.V.A., at the Royal Star Hotel, Maidstone, 6.30 p.m.

Annual General Meeting of the Essex Division, B.V.A., at the Essex Institute of Agriculture, Writtle, Nr. Chelmsford, Essex, 7.30 p.m.

Annual General Meeting of the Dumfries and Galloway Division, B.V.A., in the Station Hotel, Dumfries, 2.15 p.m.

General Meeting of the Yorkshire Division, B.V.A., in the Guildford Hotel, Leeds, 2.30 p.m.

24th (Thurs.). General Meeting of the Herts and Beds Division, B.V.A., at the Red Lion Hotel, Luton, 7.30 p.m.

25th (Fri.). Ordinary General Meeting of the Royal Counties Division, B.V.A., at the Bull's Head Hotel, Aylesbury, 2.30 p.m.

30th (Wed.). Annual General Meeting of the Veterinary Benevolent and Mutual Defence Society at The Midland Hotel, Manchester, 2.30 p.m.

June

6th (Wed.). 113th Annual General Meeting of the Royal College of Veterinary Surgeons at 10, Red Lion Square, London, W.C.1, 12 noon.

Annual General Meeting of the Victoria Veterinary Benevolent Fund at 10, Red Lion Square, immediately following the Annual General Meeting listed above.

7th (Thurs.). Annual Meeting of the R.A.V.C. Golfing Society at the North Hants Golf Club, Fleet, 10 a.m.

8th (Fri.). Annual Dinner of the Royal Army Veterinary Corps Officers Club at Grosvenor House, Park Lane, London, W.1.

13th (Wed.). Summer Meeting of the Central Division, B.V.A., at the Cooper Technical Bureau, Berkhamsted, Herts, 11 a.m.

20th (Wed.). Meeting of the Midland Counties Division, B.V.A., at the Raven Hotel, Droitwich.

September

16th to 22nd (Sun. to Sat.). 74th B.V.A. Annual Congress at Royal Leamington Spa.

R.C.V.S. EXAMINATIONS

June 7th, Thursday. D.V.S.M. Written Examinations commence at Edinburgh.

June 11th, Monday. D.V.S.M. Oral and Practicals commence.

June 21st, Thursday, and June 22nd, Friday. M.R.C.V.S. Written Examinations.

June 25th, Monday. M.R.C.V.S. Practical and Orals commence (Panels "A" and "B").

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Dumfries. Chapelhill, Glencaple (May 2).

Durham. Blakeley Hill Farm, Wingate (May 7).

Kirkcudbright. South Corbelly Farm, New Abbey (May 5).

Lancs. New House Farm, Out Rawcliffe, Preston (May 1).

Leics. The Manor Farm, North Kilworth, Rugby; Shoby House Farm, Shoby; Linden Farm, Countesthorpe (May 1); Mickle Hill Farm, Aston Flamville, Hinckley (May 4).

Lincs. Fishmore End, Kirton, Boston (May 2).

Monmouth. Monmouthshire Institute of Agriculture, Usk, (May 3).

Northumberland. Dyke Head Farm, Rochester, Otterburn, Newcastle upon Tyne (May 1).

Notts. Public Slaughterhouse, London Road, Nottingham (May 5).

Oxford. Cannon's Farm, Old Marston (May 4).

Yorks. Selby Road, Howden (May 2); Donna House Farm, Rudston, Driffield; Marchcote Farm, Cottingley, Bingley (May 5); Church Farm, Nunnington; Piggeries rear of Barrack Tavern, Fulford Road (May 7).

Fowl Pest

Essex. Dunton Wayletts Farm, Dunton, Brentwood (May 1); Birches, Hunters Chase, Hutton, Brentwood (May 6).

Herts. Blackwells Yard, Railway Terrace, Kings Langley; 3, Bryfield Cottages, Flaunden Lane, Bovingdon, Hemel Hempstead (May 2); 47, Runham Road, Hemel Hempstead (May 3).

Lancs. Four Lane Ends Farm, Sherdley Road, St. Helens (May 3).

Lincs. Valletta, Wragby Road East, Lincoln (May 1); Monks Road, Lincoln (May 3).

Foot-and-Mouth Disease

Essex. The Bungalow, Warley Hall Lane, Little Warley, Nr. Brentwood (May 8).

Swine Fever

Berks. Mountash Farm, Abingdon Road, Didcot (May 7).

Bucks. 324, Horton Road, Datchet; Anthony House Farm, Colnbrook, Slough (May 1).

Ches. Bottoms House Farm, Warmingham, Crewe (May 7).

Essex. Piggeries, Clockhouse Lane, Collier Row, Romford (May 1).

Hants. Hawthorne Dairy, Burton, Christchurch (May 8).

Lancs. 53, High Park Road, Southport (May 7).

Leics. Mayfield, Burton Road, Ashby-de-la-Zouch (May 3).

Lincs. Richardson's Farm, Cross Lane, Butterwick, Boston (May 8).

Norfolk. Woodgate Farm, Beeston, Kings Lynn (May 7).

Salop. Hare & Hounds, Crackley Bank, Shifnal (May 5).

Staffs. Boots Lane, Bridgnorth Road, Compton, Wolverhampton (May 1); 344, Prestwood Road, Wolverhampton (May 2); White Cross Farm, Haughton (May 3).

Somerset. Withy Grove Farm, East Huntspill, Highbridge (May 4).

Suffolk. Potash Farm, Elmsett, Ipswich (May 2).

Warwicks. Wormleighton Grange, Wormleighton, Leamington Spa (May 7); Piggeries, 39, Brooklands Walk, Monkspath, Shirley, Birmingham (May 8).

Wilts. Wickett Green Farm, Landford, Salisbury (May 3).

Yorks. Blake Hill End Farm, Northowram, Halifax (May 1); Bridgefield, Brayton, Selby (May 3); Bullhouse Mill, Thurlestone, Penistone, Sheffield (May 8).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Tetrachlorethylene as an Anthelmintic for Sheep

Sir,—Mr. H. McL. Gordon, in his letter published in last week's VETERINARY RECORD, suggests that I have been a little too sweeping in my condemnation of tetrachlorethylene as an anthelmintic for sheep, but I wonder if he, on his part, is not praising the drug a little too highly? Mr. Gordon points out that if a drench of copper sulphate precedes the administration of the tetrachlorethylene the latter will pass directly into the abomasum and will have a useful anthelmintic effect. As explained in my paper the use of copper sulphate was deliberately avoided in my experiments, as it is unreliable in its action and is not routinely used in practice in this country. It is, of course, well known that the response of the oesophageal groove reflex to stimulation with copper sulphate is erratic. In animals, in which no response to copper sulphate is elicited, tetrachlorethylene has no anthelmintic action, and such animals, if heavily infested, will die, or if less heavily infested, will continue to disseminate worms' eggs on to the pasture. In some instances the proportion of failures may be high; for example, Ortlepp & Monnig (1936) carried out *post-mortem* examination on six sheep from a flock of treated sheep and found three to be free from worms while the other three remained heavily infested. Since the action of tetrachlorethylene is dependent on the successful stimulation of the oesophageal groove reflex it seems to me better to avoid its use altogether and to rely on a drug such as phenothiazine, which exerts its effect when given as a drench into the rumen.

In conclusion, however, I should say there have been favourable reports on tetrachlorethylene from a number of practitioners, and since my article was published last December, Mr. J. B. White of Salisbury has informed me that he makes use of tetrachlorethylene in cases where the action of phenothiazine appears

to be indifferent, and that he believes from clinical experience that the drug is of considerable value. He always uses a drench of copper sulphate prior to administering the tetrachlorethylene which is shaken up with milk or tragacanth emulsion, and the only adverse effect he reports is a transitory intoxication which passes off within an hour.

Yours faithfully,

T. E. GIBSON.

Ministry of Agriculture Veterinary Laboratory,
Weybridge,
Surrey.

May 4th, 1956.

Reference

ORTLEPP, R. J., & MONNIG, H. O. (1936). *Onderstepoort J. Vet. Sci.* 7. 399-417.

Wounds in the Teats of Cows

Sir,—Mr. Cavill describes a case in which, after suturing a teat tear, the quarter was left unmilked for eight days.

In this practice, it has been our custom, for the past few years. to adopt this " rest " treatment for several teat conditions including black spots, wounded teats which have been sutured, and for severely bruised teats, especially those involving the tip of the teat. Rest from milking, in our opinion, is a very great factor in promoting rapid healing.

The affected teat is injected (using a fine catheter) with 4 c.c. distaquaine and left unmilked for a period of up to 10 days, depending on the severity of the condition. Even in high-yielding cows this procedure seldom results in mastitis, and once milking is recommenced the yield from the affected quarter will, in a high proportion of cases, return to normal or be only slightly " short." Very seldom does this treatment result in a suppurative mastitis which we consider to be a common complication when using siphons or bougies.

Mr. Sachs uses elastoplast and we, too, find this a great help in repairing teat tears, either when applied alone or in addition to sutures. When the tear is sutured, an elastoplast covering helps to support the sutures which would otherwise be subjected to a considerable degree of stress, as the quarter fills with milk when the rest treatment is applied.

Yours faithfully,

DAVID R. PERRETT.

Woodlands,
Overnhill Road,
Staple Hill,
Bristol.

April 28th, 1956.

Canine Distemper Forum

Sir,—I found the discussions and comments in the forum on canine distemper (April 21st) most informative. The distemper problem appears to be strikingly similar on both continents. There is one significant difference of opinion, however. This is with respect to the importance of nutrition in this disease.

The opinion is widely held in this country that a highly nutritious diet is of utmost importance during the course of distemper. During the febrile state the dog's appetite is invariably poor; symptoms of digestive intolerances are common and pyrexia accelerates the metabolic demands for energy. The nutritive requirements are accelerated but the intake is actually reduced.

It has also been suggested that prolonged oral use of wide-spectrum antibiotics during therapy may depress bacterial synthesis of essential vitamins in the intestines. It has become common practice in this country to supplement the diet with the most important nutrients to make sure the dog's requirements are adequately met.

I know of no controlled experiment in which the rôle of nutrition has been evaluated; but the general thinking appears to be that the chances for recovery from this infectious disease depend to a certain extent on maintaining a satisfactory state of nutrition.

Yours faithfully,

R. F. VIGUE.

66, Tanglewylde Avenue,
Bronxville,
New York,
U.S.A.

May 3rd, 1956.

Dislocation of the Hip in the Dog

Sir,—Mr. R. D. Franklin's letter on this subject is surprising, to say the least; so is his almost complete condemnation of Mr. Knight's work.

Has he never used a deep-muscle counter-irritant? This, with careful restriction of movement for a week or two, will, I think, alter his prognosis very considerably.

One wonders whether he advises destruction in all cases. or allows the healing process to take care of itself. If the latter (which obviously means a permanently lame dog) then perhaps—having been in practice since 1920 until a few years ago—I might be allowed to warn him that he could possibly find himself in trouble with the R.S.P.C.A., the police, or both.

Yours faithfully,

A. B. HENDRY.

Shangri-La,
St. Brelade's Park,
Jersey,
Channel Islands.

April 30th, 1956

ADVERTISER'S ANNOUNCEMENT

IMPERIAL CHEMICAL (PHARMACEUTICALS) LTD., announce that they now issue a 50 c.c. special veterinary pack of " Avloprocil " A.S. procaine penicillin G aqueous suspension 300,000 units in 1 c.c. This pack is in addition to the usual 10 c.c. and 5 c.c. bottles which are already on the medical range.